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EXAMINER

FUJITA, KATRINA R

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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09/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/526,192

Applicant(s)

MAKRAM-EBEID ET AL.

Examiner

Katrina Fujita

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*.See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 03/01/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references cited in the Search Report EP March 29, 2004 have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO/SB/08A and 08B form, must be filed within the set period for reply to this Office action.

Drawings

3. Figure 1A is objected to because the leftmost "D1" should be --S1--.
4. Figure 1B is objected to because "q" should be --p--.

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5. Figure 2 is objected to as depicting a block diagram without “readily identifiable” descriptors of each block, as required by 37 CFR 1.84(n). Rule 84(n) requires “labeled representations” of graphical symbols, such as blocks; and any that are “not universally recognized may be used, subject to approval by the Office, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable.” In the case of Figure 2, blocks 20-40 are not readily identifiable per se and therefore require the insertion of text that identifies the function of that block. That is, each vacant block should be provided with a corresponding label identifying its function or purpose.

6. Figures 3A and 3B are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: S6 (Figures 3A, 3B).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The disclosure is objected to because of the following informalities:

The first line of the specification does not include a sentence acknowledging applicant's claim for foreign priority. The examiner suggests amending the specification to include that information.

Appropriate correction is required.

Claim Suggestions

8. In claim 2, line 2, "spatial the information" should be changed to -- the spatial information --.

Claim Objections

9. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

10. Claims 1-3 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 1 lacks antecedent basis for "the corresponding unit element" in line 9.

The following will be assumed for examination purposes: -- the corresponding boundary unit element --.

Claim 1 lacks antecedent basis for "said coefficients" in line 13. The following will be assumed for examination purposes: -- said transform coefficients --.

Claim 2 lacks antecedent basis for "the unit elements" in line 2. The following will be assumed for examination purposes: -- the boundary unit elements --.

Claim 2 lacks antecedent basis for "the boundary" in line 3. The following will be assumed for examination purposes: -- the object boundary --.

Claim 3 lacks antecedent basis for "the means for yielding" in line 5. The following will be assumed for examination purposes: -- the means for ~~yielding~~ computing --.

Claim 3 lacks antecedent basis for "said coefficients" in lines 5 and 7. The following will be assumed for examination purposes: -- said transform coefficients --.

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11. Claims 4-14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (US 6,078,680).

Regarding **claim 1**, Yoshida et al. discloses an image processing system comprising data acquisition means (figure 18, numeral 1802, which is equivalent to applicant's disclosed computer program product) for acquiring image data of an object

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in an image ("detection of pulmonary nodules in digital chest radiographs" at col. 5, line 67) and processing means (portion of the computer program that is "designed to accentuate particular shapes while attenuating other shapes" at col. 7, line 67, which is equivalent to applicant's disclosed computer program product) for characterizing a boundary of the object comprising computing means (portion of the computer program that obtains "an edge representation of ROI features" at col. 8, line 7, which is equivalent to applicant's disclosed computer program product) for identifying the object boundary and reference points of said object boundary ("boundary of the nodule" at col. 3, line 52) within an observation window (figure 4a); and for decomposing said object boundary into boundary unit elements ("edges of features" at col. 9, line 42), centred at the reference points;

this image processing system further comprising processing means (portion of the computer program that completes "multiscale edge representation" at col. 8, line 35, which is equivalent to applicant's disclosed computer program product) for:

coding each reference point using coding data including spatial information and intensity information relating to said reference point and the corresponding boundary unit element ("Features such as length and intensity of the edges, as well as scales of the image from which the edges are extracted" at col. 6, line 15)

computing transform coefficients ("wavelet coefficients" at col. 8, line 57) from said coding data;

representing said object boundary by a polynomial transform function (equation 4, at col. 10) using a finite number of said transform coefficients; and comprising

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viewing means (figure 17, numeral 1720, which is equivalent to applicant's disclosed monitor) for:

visualizing object images and/or processed images (figure 18, numeral 1818).

Regarding **claim 2**, Yoshida et al. discloses an image processing system wherein the means for coding the reference points yield the spatial information based on the size of the boundary unit elements; and yield the intensity information based on the number of intensity levels along the object boundary ("length and intensity of the edges of the structures, as well as the scale of the filter used to process the image from which the edges have been extracted, are advantageously utilized to characterize the structures" at col. 11, line 14).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Yoshida et al. and Silver et al. (US 6,658,145).

As described above, Yoshida et al. discloses an image processing system wherein the means for coding the reference points represent each boundary unit element by a strength proportional to the size of the boundary unit element, centred at the reference points; and

the means for computing the transform coefficients compute said transform coefficients for further representing said object boundary by a polynomial transform function using a finite number of said transform coefficients.

Yoshida et al. does not disclose that the boundary unit elements are represented by a dipole oriented along the outward normal direction to the object boundary and that the transform coefficients are computed from dipoles.

Silver et al. discloses an image processing system wherein the means for coding the reference points represent each boundary unit element by a dipole of strength proportional to the size of the boundary unit element ("assign a weighting factor to each image dipole" at col. 7, line 33), centred at the reference points and oriented along the outward normal direction to the object boundary (figure 6); and

the means ("software" at col. 10, line 24, which is equivalent to applicant's disclosed computer program product) for computing the transform coefficients ("weights w_i " at col. 21, line 38) compute said transform coefficients from said dipoles for further representing said object boundary by a polynomial transform function using a finite number of said transform coefficients (equation 7, at col. 21).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the dipoles of Silver et al. to represent the edges of Yoshida et al.

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such that "one need not sacrifice degree of freedom measurements in order to keep execution time within practical bounds" at col. 5, line 59).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 7,016,539 is pertinent as disclosing a pattern recognition system utilizing edge detection.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Katrina Fujita
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BRIAN WERNER
SUPERVISORY PATENT EXAMINER